IMO’s developments on maritime radiocommunications and use of digital information

E-Navigation underway 2019 - North America
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The United Nations specialized agency responsible for safe, secure, and efficient shipping and the prevention of pollution from ships
IMO – Structure

Assembly
174 Member Governments

Council
40 Member Governments

Maritime Safety

Technical Cooperation

Facilitation

Legal

Marine Environment Protection

SHIP DESIGN AND CONSTRUCTION (SDC)

SHIP SYSTEMS AND EQUIPMENT (SSE)

HUMAN ELEMENT, TRAINING AND WATCHKEEPING (HTW)

NAVIGATION, COMMUNICATION AND SEARCH AND RESCUE (NCSR)

CARRIAGE OF CARGOES AND CONTAINERS (CCC)

IMPLEMENTATION OF IMO INSTRUMENTS (III)

POLLUTION PREVENTION AND RESPONSE (PPR)
Contents of this presentation

➢ E-navigation
➢ Maritime radiocommunications
➢ Maritime Single Window
➢ Cyber Security
➢ Autonomous ships
E-navigation strategy implementation plan (SIP)

- User needs
- Gap Analysis
- Potential solutions
- Cost-benefit and Risk analyses

Collection
Integration
Exchange
Presentation
Analysis
E-navigation

Improved, harmonized and user-friendly **bridge design**.

Means for standardized and automated **ship reporting**.

Improved reliability, resilience and integrity of **bridge equipment** and **navigation information**.

Improved communication of **VTS service portfolio**.

**Integration and presentation** of available information in graphical displays received via communication equipment.

5 prioritized solutions
E-navigation

- Approval of the overarching e-navigation architecture;
- Endorsement to use the **IHO’s S-100 standard** as the baseline for creating a framework for data access and services under the scope of SOLAS;
- **Guidelines on Harmonization of testbed reporting** (MSC.1/Circ.1494);
- **Guideline on Software Quality Assurance and Human-Centred Design for e-navigation** (MSC.1/Circ.1512);
- **Guidelines for shipborne position, navigation and timing (PNT) data processing to the Performance standards for multi-system shipborne radio navigation receivers** (MSC.1/Circ.1575);
- **Interim guidelines for the harmonized display of navigation information received via communication equipment** (MSC.1/Circ.1593);
- **Guidelines and criteria for ship reporting systems** (resolution MSC.433(98), revising resolution MSC.43(64));
- Guidelines for the standardization of user interface design for navigation equipment (MSC.1/Circ.1609), including Amendments to the Performance standards for the presentation of navigation-related information on shipborne navigational displays (resolution MSC.191(79)) (resolution MSC.466(101)) and to the Guidelines for the presentation of navigation related symbols, terms and abbreviations (SN.1/Circ.243/Rev.2);

- Guidance on the definition and harmonization of the format and structure of Maritime Services in the context of e-navigation (resolution MSC.467(101)); and

- Initial descriptions of Maritime Services in the context of e-navigation (MSC.1/Circ.1610).
E-navigation

MS 1 – VTS Information service (INS)
MS 2 – VTS Navigational assistance service (NAS)
MS 3 – Traffic organization service (TOS)
MS 4 – Port support service (PSS)
MS 5 – Maritime safety information (MSI) service
MS 6 – Pilotage service
MS 7 – Tug service
MS 8 – Vessel shore reporting
MS 9 – Telemedical assistance service (TMAS)
MS 10 – Maritime assistance service (MAS)
MS 11 – Nautical chart service
MS 12 – Nautical publications service
MS 13 – Ice navigation service
MS 14 – Meteorological information service
MS 15 – Real-time hydrographic and environmental information services
MS 16 – Search and rescue (SAR) service
E-navigation – Work ahead

- Further development of technical services specifications and data modelling.

- Coordination/collaboration mechanisms between domain coordinating bodies.

- Review progress and update the e-navigation Strategy Implementation Plan, providing clear directions.

- Promoting the work on e-navigation.
Maritime radiocommunications

- Review of SOLAS chapter IV on Radiocommunications
- Recognition of Iridium as a new mobile satellite service provider in the GMDSS
- Recognition of BeiDou Message Service system as a GMDSS service provider
- Revision of resolution A.857(20) on Guidelines for Vessel traffic services
Maritime radiocommunications

- Developments **autonomous maritime radio devices and identities** in the maritime mobile service
- Developments related to **NAVDAT** and **VDEs**
- Global Navigation Satellite Systems (**GNSS**)
Maritime Single Window

- Amendments to the FAL Convention adopted by resolution FAL.12(40)

- New Standard 1.3 bis:

  “Public Authorities have to establish systems for the electronic exchange of information by **8 April 2019**”

- Online access to certificates and documents E-certificates (FAL.5/Circ.39/Rev.2)

Are you ready?
MSC-FAL.1/Circ.3 on Guidelines on maritime cyber risk management
Provide high-level recommendations on maritime cyber risk management to safeguard shipping from current and emerging cyberthreats and vulnerabilities. The Guidelines also include functional elements that support effective cyber risk management.

Resolution MSC.428(98) Maritime cyber risk management in safety management systems
Cyber risks to be appropriately addressed in safety management systems no later than the first annual verification of the company’s Document of Compliance after 1 January 2021.
Cyber Security

Functional elements to support effective cyber risk management:

Identify

Protect

Detect

Respond

Recover
Cyber security

Vulnerable systems onboard ships

- Bridge systems;
- Cargo handling and management systems;
- Propulsion and machinery management and power control systems;
- Access control systems;
- Passenger servicing and management systems;
- Passenger facing public networks;
- Administrative and crew welfare systems;
- Communication systems;
- ...
Autonomous ships
IMO regulatory scoping exercise on MASS

The Maritime Safety Committee (MSC), at its ninety-eight session, agreed to work on a "Regulatory scoping exercise for the use of Maritime Autonomous Surface Ships (MASS)", with a target completion year of 2020, and that the Organization should be proactive and take a leading role in the matter.

IMO takes first steps to address autonomous ships
IMO regulatory scoping exercise on MASS

Preliminary framework

**Aim:** to determine how safe, secure and environmentally sound MASS operations might be addressed in IMO instruments.

**Objective:** to assess the degree to which the existing regulatory framework may be affected in order to address MASS operations.
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